AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1   1-20   (Cancelled).

1   21.   (New)   A method for performing a frequent itemset operation, the method
2   comprising the steps of:
3   performing the frequent itemset operation in a plurality of phases, wherein each phase
4   is associated with combinations that have a particular number of items;
5   during at least one phase of the plurality of phases, performing the steps of
6   determining candidate combinations that are to be evaluated during the phase;
7   grouping the candidate combinations into clusters, wherein each cluster
8   corresponds to a common combination of items, and wherein all
9   candidate combinations in a given cluster include the common
10   combination of items associated with the cluster; and
11   processing said candidate combinations, based on said clusters, to determine
12   whether the candidate combinations satisfy a frequency criteria
13   associated with said frequent itemset operation.

1   22.   (New)   A computer-readable medium carrying one or more sequences of instructions
2   which, when executed by one or more processors, causes the one or more processors
3   to perform the method recited in Claim 21.

1   23.   (New)   The method of Claim 21, wherein the step of grouping the candidate
2   combinations into clusters includes the step of establishing an ordering for said
3   candidate combinations by sorting the candidate combinations relative to each other
4   based on the items within each of the candidate combinations.

1   24.   (New)   A computer-readable medium carrying one or more sequences of instructions
2   which, when executed by one or more processors, causes the one or more processors
3   to perform the method recited in Claim 23.

1 25. (New) The method of Claim 23, wherein the step of processing the candidate
2   combinations based on the clusters includes processing the candidate combinations in
3   a sequence based on said ordering.

1 26. (New) A computer-readable medium carrying one or more sequences of instructions
2   which, when executed by one or more processors, causes the one or more processors
3   to perform the method recited in Claim 25.

1 27. (New) The method of Claim 21, wherein the step of grouping the candidate
2   combinations into clusters includes hashing the candidate combinations into buckets
3   based on the items that the candidate combination contain.

1 28. (New) A computer-readable medium carrying one or more sequences of instructions
2   which, when executed by one or more processors, causes the one or more processors
3   to perform the method recited in Claim 27.

1 29. (New) The method of Claim 21, wherein the step of processing the candidate
2   combinations includes generating bitmaps for the candidate combinations, and
3   determining how many item groups of an item group population include each
4   candidate combination based on the bitmap for the candidate combination.

1 30. (New) A computer-readable medium carrying one or more sequences of instructions
2   which, when executed by one or more processors, causes the one or more processors
3   to perform the method recited in Claim 29.

1 31. (New) The method of Claim 29, wherein the step of processing the candidate
2   combinations includes, for each cluster, performing the steps of:
3   generating a bitmap for a particular combination that is a subcombination of all
4   combinations in the cluster;
5   using the bitmap for the particular combination to generate bitmaps for all
6   combinations in the cluster;
7   using the bitmap generated for each combination in the cluster to determine how
8   many item groups include the combination; and

9   after all combinations in the cluster have been processed, discarding from volatile

10   memory the bitmap for the particular combination.

1   32.   (New) A computer-readable medium carrying one or more sequences of instructions

2   which, when executed by one or more processors, causes the one or more processors

3   to perform the method recited in Claim 31.

1   33.   (New) The method of Claim 21, wherein the step of processing the candidate

2   combinations includes generating bitmaps for the candidate combinations as the

3   candidate combinations are processed in a sequence, the method further comprising

4   the steps of:

5   generating one or more intermediary bitmaps for use in generating of a bitmap for a

6   current candidate combination; and

7   after generating the bitmap for the current candidate combination, retaining in volatile

8   memory only those intermediary bitmaps that are base bitmaps of a next

9   candidate combination in said sequence; and

10   if any intermediate bitmaps are retained, then using one or more of the intermediary

11   bitmaps to generate a bitmap for the next candidate combination in said

12   sequence.

1   34.   (New) A computer-readable medium carrying one or more sequences of instructions

2   which, when executed by one or more processors, causes the one or more processors

3   to perform the method recited in Claim 33.

1   35.   (New) A method for performing a frequent itemset operation, the method

2   comprising the steps of:

3   performing the frequent itemset operation in a plurality of phases, wherein each phase

4   is associated with combinations that have a particular number of items;

5   during at least one phase of the plurality of phases, performing the steps of

6   determining candidate combinations that are to be evaluated during the phase;

7   processing said candidate combinations to determine whether the candidate

8   combinations satisfy a frequency criteria associated with said frequent

9   itemset operation, wherein the step of processing the candidate

10		combinations includes generating bitmaps for the candidate
11		combinations; and
12		using an index on non-volatile memory to store a set of bitmaps that are
13		generated during said at least one phase; and
14		during a subsequent phase of said plurality of phases, performing the steps of
15		retrieving bitmaps from said index into volatile memory; and
16		using the bitmaps retrieved from said index to generate bitmaps for candidate
17		combinations of said subsequent phase.

1	36.	(New) A computer-readable medium carrying one or more sequences of instructions
2		which, when executed by one or more processors, causes the one or more processors
3		to perform the method recited in Claim 35.

1	37.	(New) The method of Claim 35, wherein the step of using an index on non-volatile
2		memory to store a set of bitmaps includes using an index that uses the combination
3		associated with a bitmap as an index key for determining where within the index to
4		place an entry for the bitmap.

1	38.	(New) A computer-readable medium carrying one or more sequences of instructions
2		which, when executed by one or more processors, causes the one or more processors
3		to perform the method recited in Claim 37.

1	39.	(New) The method of Claim 35, wherein:
2		the at least one phase is a phase associated with N-item combinations; and
3		the set of bitmaps includes bitmaps associated with all N-item combinations that
4		satisfy the frequency criteria.

1	40.	(New) A computer-readable medium carrying one or more sequences of instructions
2		which, when executed by one or more processors, causes the one or more processors
3		to perform the method recited in Claim 39.